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SPUN YARN APPLICATIONS

Spun yarns are made up of staple fibers that are held together by twist.

The Spun yarns have defects such as thick places, thin places and neps. These defects need to be counted and analyzed.

Cotton Spun yarns are graded for appearance according to the number of these defects and their distribution.

Lawson Hemphill Yarn Analysis Software (YAS) counts the yarn defects using the yarn diameter value as measured by a CCD camera. The defects are displayed by length and diameter and the YAS software will simulate the yarn appearance on the blackboard or tapered board.

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LAWSON HEMPHILL YARN ANALYSIS PROGRAM for SPUN YARNS

- Dynamic yarn analysis based on diameter measurement
- Standard Deviation and CV% for Yarn Diameter measure for entire test length
- Ability to measure every 0.5mm of the yarn with 3.5micron precision
- Fast and accurate optical yarn diameter measurement enables continuous monitoring and detection of the yarn defects such as thick places, thin places, neps, slubs
- User-defined Yarn Defect Distribution Table by defect diameter and length
- Ability to simulate yarn appearance on blackboard or tapered board
- Ability to show and compare two different yarn profiles
- Variable yarn test speed from 20-300m/min
- Supplied with Windows XP based, Yarn Analysis Software (YAS) program

YAS RESULTS for
Ne 30 GOOD YARN

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Ne 30 GOOD YARN > DEFECT DISTRIBUTION TABLE AND YARN DIAMETER CV%

Test by: **Lawson-Hemphill**
1658 G.A.R. Highway,
Swansea, MA 02777
Tester: **Default User**

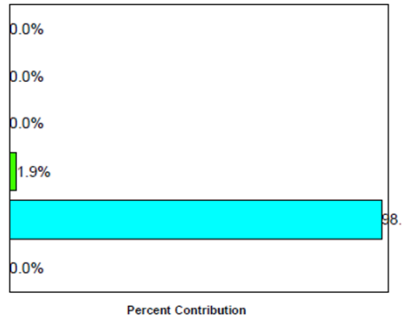
Yarn Group: **default with diameter**
Lot Number: **1**
Machine Number: **1**
Doff Number: **1**

Test Name: **Ne30 combed brown Test2 Event Classification**
Matrix: **fault**

Setup: Reference Diameter: **0.187** Test Length: **100** Test Speed: **100** Light Level: **96**

Results:

Min. Event Length (mm)	Diameter Difference	Event Length (mm) 1.0 - 5.0	5.0 - 10.0	10.0 - 15.0	15.0 - 20.0	20.0 - 25.0	25.0 - 30.0	30.0 - 35.0	35.0 +	Total
1.00	+400 %	0	0	0	0	0	0	0	0	**0**
1.00	+200 %	0	0	0	0	0	0	0	0	**0**
3.00	+100 %	0	0	0	0	0	0	0	0	**0**
3.00	+50 %	1	0	0	0	0	0	0	0	**1**
3.00	+25 %	41	10	0	0	0	0	0	0	**51**
3.00	-40 %	0	0	0	0	0	0	0	0	**0**
										52



Average Diameter: **0.186** Standard Deviation: **0.022** CV%: **11.58**

Comments: Yarn Information:

Test Setup: **15g tension**

YAS RESULTS for
Ne 30 UNEVEN YARN

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Ne 30 UNEVEN YARN > DEFECT DISTRIBUTION TABLE AND YARN DIAMETER CV%

Test by: **Lawson-Hemphill**
1658 G.A.R. Highway,
Swansea, MA 02777
Tester: **Default User**

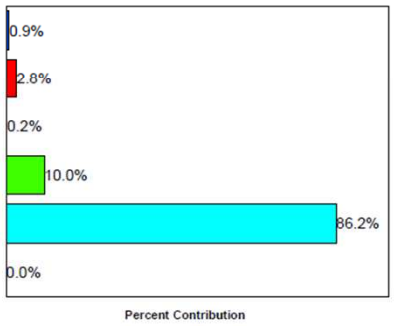
Yarn Group: **default with diameter**
Lot Number: **1**
Machine Number: **1**
Doff Number: **1**

Test Name: **Ne30 carded yellow Test2 Event Classification**
Matrix: **fault**

Setup: Reference Diameter: **0.197** Test Length: **100** Test Speed: **100** Light Level: **96**

Results:

Min. Event Length (mm)	Diameter Difference	Event Length (mm) 1.0 - 5.0	5.0 - 10.0	10.0 - 15.0	15.0 - 20.0	20.0 - 25.0	25.0 - 30.0	30.0 - 35.0	35.0 +	Total
1.00	+400 %	5	0	0	0	0	0	0	0	**5**
1.00	+200 %	16	0	0	0	0	0	0	0	**16**
3.00	+100 %	1	0	0	0	0	0	0	0	**1**
3.00	+50 %	46	12	0	0	0	0	0	0	**58**
3.00	+25 %	339	138	19	3	0	0	0	0	**499**
3.00	-40 %	0	0	0	0	0	0	0	0	**0**
										579



Average Diameter: **0.198** Standard Deviation: **0.041** CV%: **20.65**

Comments: Yarn Information:

Test Setup: **15g**

COMPARISON of YAS RESULTS for Ne 30 GOOD and UNEVEN YARNS

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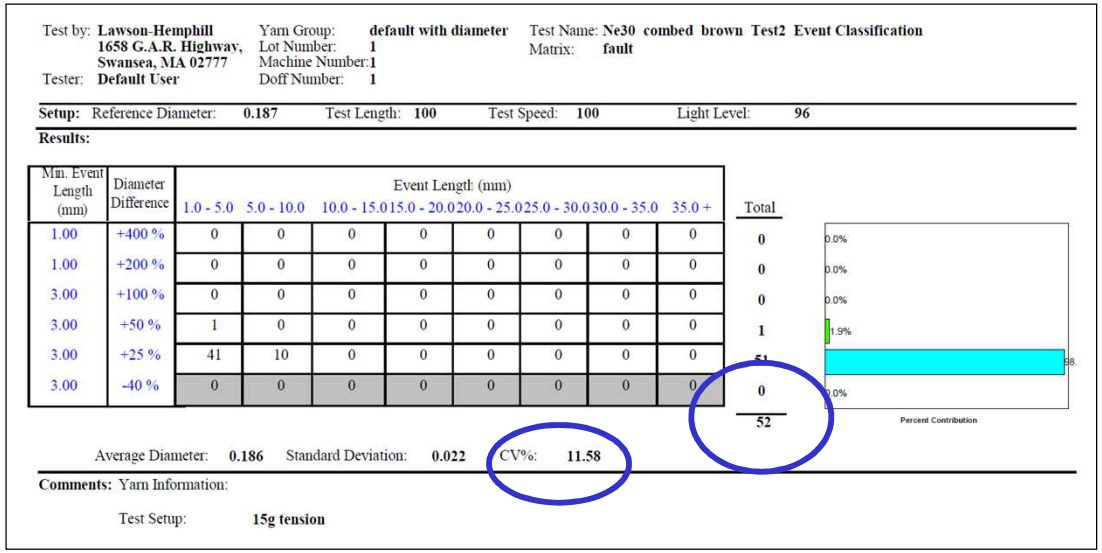


Test by: **Lawson-Hemphill** Yarn Group: **default with diameter** Test Name: **Ne30 combed brown Test2 Event Classification**
1658 G.A.R. Highway, Lot Number: **1** Matrix: **fault**
Swansea, MA 02777 Machine Number: **1**
Tester: **Default User** Doff Number: **1**

Setup: Reference Diameter: **0.187** Test Length: **100** Test Speed: **100** Light Level: **96**

Results:

Min. Event Length (mm)	Diameter Difference	Event Length (mm) 1.0 - 5.0	5.0 - 10.0	10.0 - 15.0	15.0 - 20.0	20.0 - 25.0	25.0 - 30.0	30.0 - 35.0	35.0 +	Total
1.00	+400 %	0	0	0	0	0	0	0	0	0
1.00	+200 %	0	0	0	0	0	0	0	0	0
3.00	+100 %	0	0	0	0	0	0	0	0	0
3.00	+50 %	1	0	0	0	0	0	0	0	1
3.00	+25 %	41	10	0	0	0	0	0	0	51
3.00	-40 %	0	0	0	0	0	0	0	0	0
										52

Average Diameter: **0.186** Standard Deviation: **0.022** CV%: **11.58**

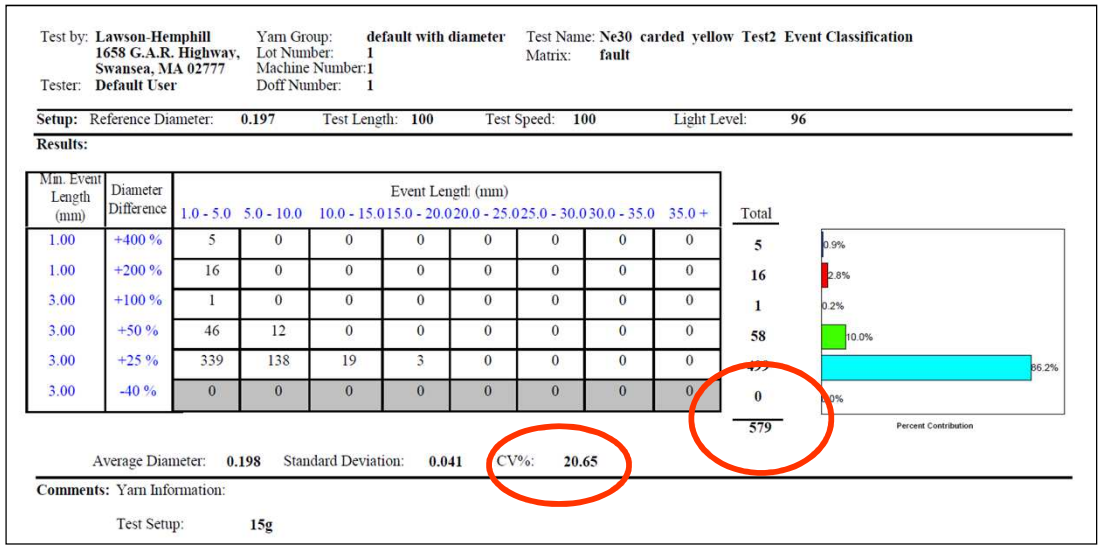
Comments: Yarn Information:

Test Setup: **15g tension**

Ne 30 Good Yarn

Total Events = 52

Diameter CV% = 11.58%



Test by: **Lawson-Hemphill** Yarn Group: **default with diameter** Test Name: **Ne30 carded yellow Test2 Event Classification**
1658 G.A.R. Highway, Lot Number: **1** Matrix: **fault**
Swansea, MA 02777 Machine Number: **1**
Tester: **Default User** Doff Number: **1**

Setup: Reference Diameter: **0.197** Test Length: **100** Test Speed: **100** Light Level: **96**

Results:

Min. Event Length (mm)	Diameter Difference	Event Length (mm) 1.0 - 5.0	5.0 - 10.0	10.0 - 15.0	15.0 - 20.0	20.0 - 25.0	25.0 - 30.0	30.0 - 35.0	35.0 +	Total
1.00	+400 %	5	0	0	0	0	0	0	0	5
1.00	+200 %	16	0	0	0	0	0	0	0	16
3.00	+100 %	1	0	0	0	0	0	0	0	1
3.00	+50 %	46	12	0	0	0	0	0	0	58
3.00	+25 %	339	138	19	3	0	0	0	0	499
3.00	-40 %	0	0	0	0	0	0	0	0	0
										579

Average Diameter: **0.198** Standard Deviation: **0.041** CV%: **20.65**

Comments: Yarn Information:

Test Setup: **15g**

Ne 30 Uneven Yarn

Total Events = 579

Diameter CV% = 20.65%

YAS YARN BOARD COMPARISION for Ne 30 yarns

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Ne 30 Good Yarn

Ne 30 Uneven Yarn

COMPARISON of YAS RESULTS for Ne 30 GOOD and UNEVEN YARNS

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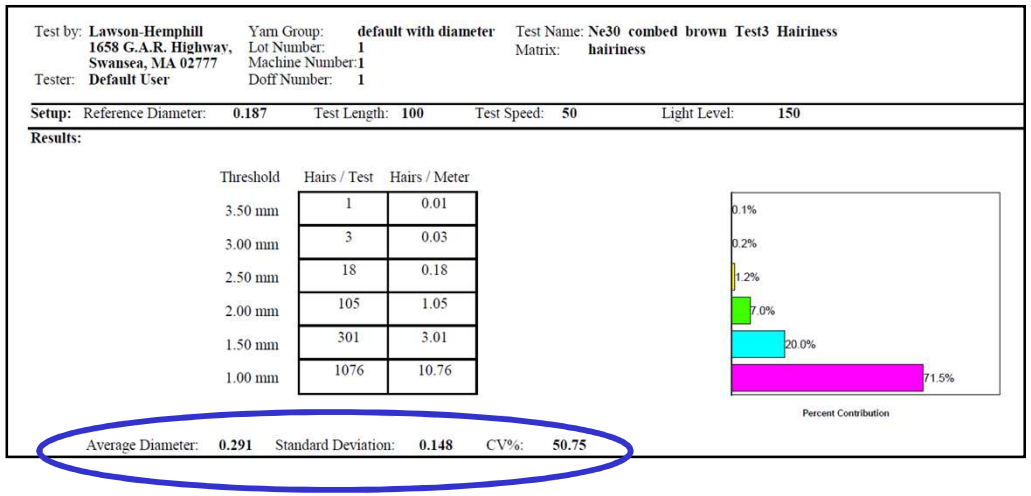


Test by: **Lawson-Hemphill** Yarn Group: **default with diameter** Test Name: **Ne30 combed brown Test3 Hairiness**
1658 G.A.R. Highway, Lot Number: **1** Matrix: **hairiness**
Swansea, MA 02777 Machine Number: **1**
Tester: **Default User** Doff Number: **1**

Setup: Reference Diameter: **0.187** Test Length: **100** Test Speed: **50** Light Level: **150**

Results:

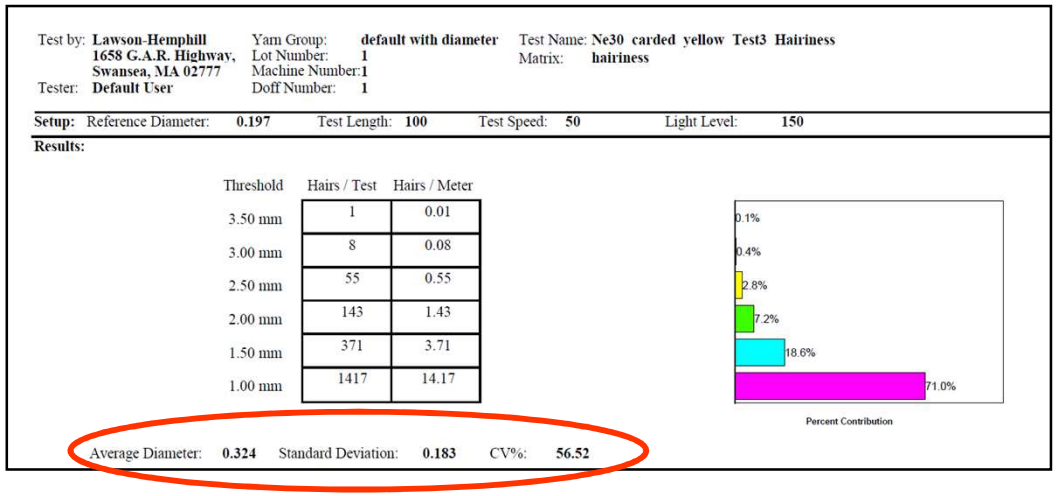
Threshold	Hairs / Test	Hairs / Meter
3.50 mm	1	0.01
3.00 mm	3	0.03
2.50 mm	18	0.18
2.00 mm	105	1.05
1.50 mm	301	3.01
1.00 mm	1076	10.76

Average Diameter: **0.291** Standard Deviation: **0.148** CV%: **50.75**

Ne 30 Good Yarn

Total Hairs (2mm level) = 105

Average Diameter = 0.291mm



Test by: **Lawson-Hemphill** Yarn Group: **default with diameter** Test Name: **Ne30 carded yellow Test3 Hairiness**
1658 G.A.R. Highway, Lot Number: **1** Matrix: **hairiness**
Swansea, MA 02777 Machine Number: **1**
Tester: **Default User** Doff Number: **1**

Setup: Reference Diameter: **0.197** Test Length: **100** Test Speed: **50** Light Level: **150**

Results:

Threshold	Hairs / Test	Hairs / Meter
3.50 mm	1	0.01
3.00 mm	8	0.08
2.50 mm	55	0.55
2.00 mm	143	1.43
1.50 mm	371	3.71
1.00 mm	1417	14.17

Average Diameter: **0.324** Standard Deviation: **0.183** CV%: **56.52**

Ne 30 Uneven Yarn

Total Hairs (2mm level) = 143

Average Diameter = 0.324%

COMPARISON of YAS RESULTS for Ne 30 GOOD and UNEVEN YARNS

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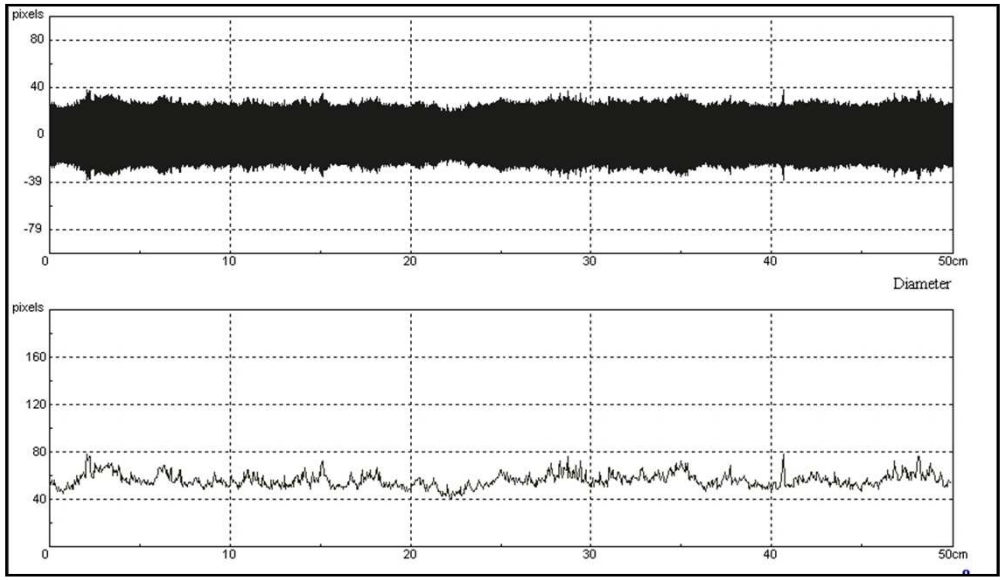
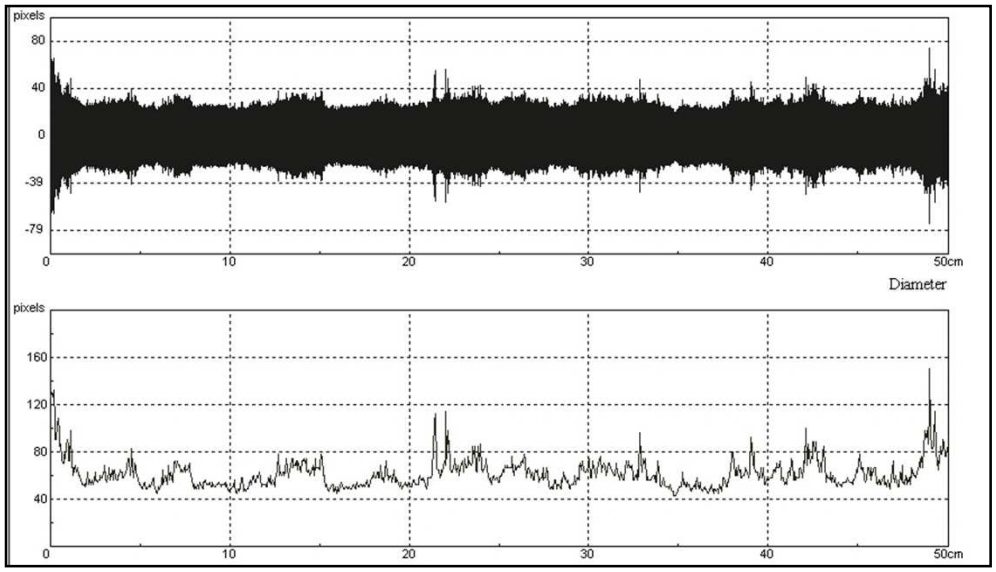


Ne 30 Good Yarn

Total Events = 52

Diameter CV% = 11.58%



Ne 30 Uneven Yarn

Total Events = 579

Diameter CV% = 20.65%

COMPARISON of YARN PROFILES for Ne 30 GOOD and UNEVEN YARNS

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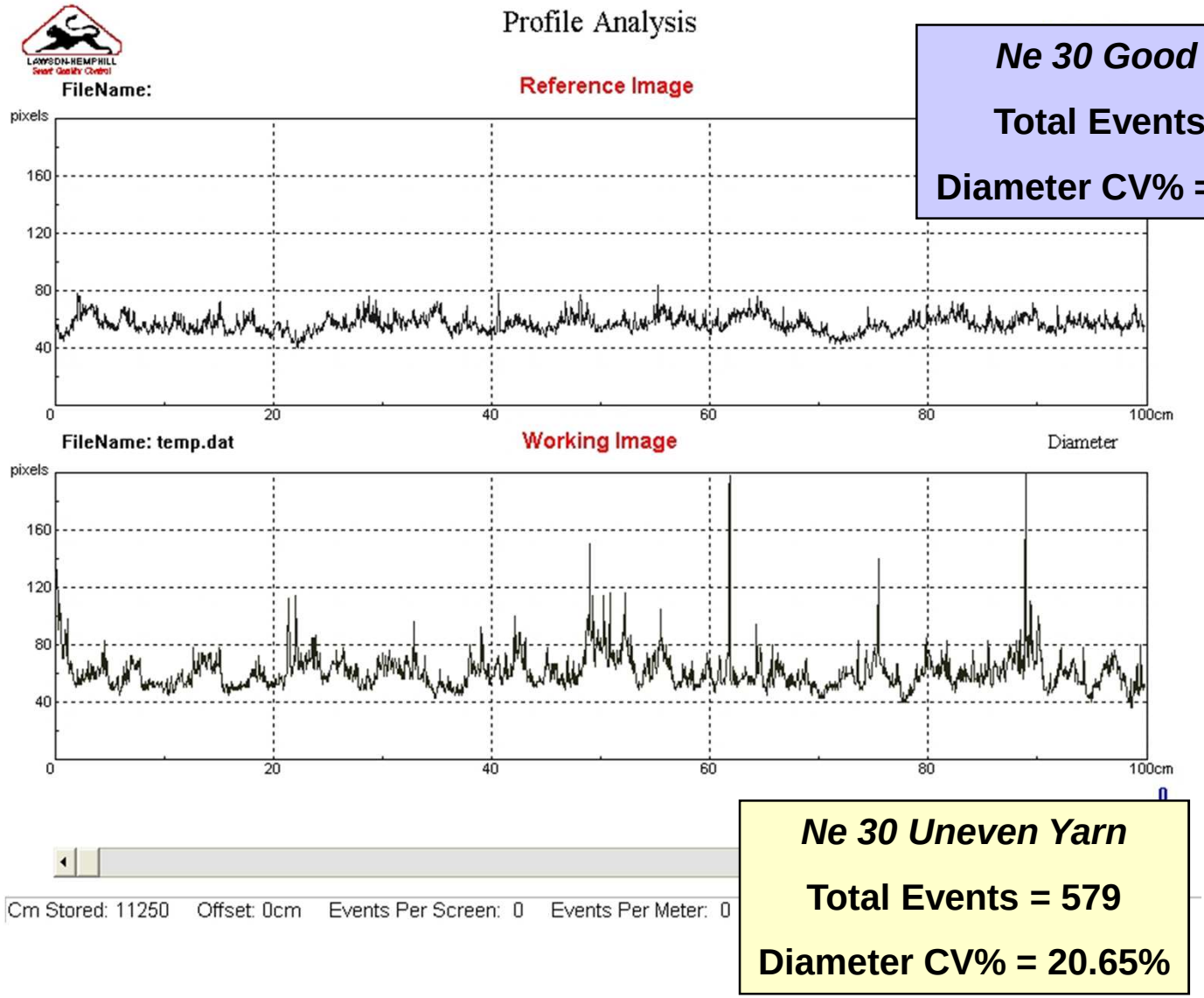

Ne 30 Good Yarn

Total Events = 52

Diameter CV% = 11.58%

Ne 30 Uneven Yarn

Total Events = 579

Diameter CV% = 20.65%

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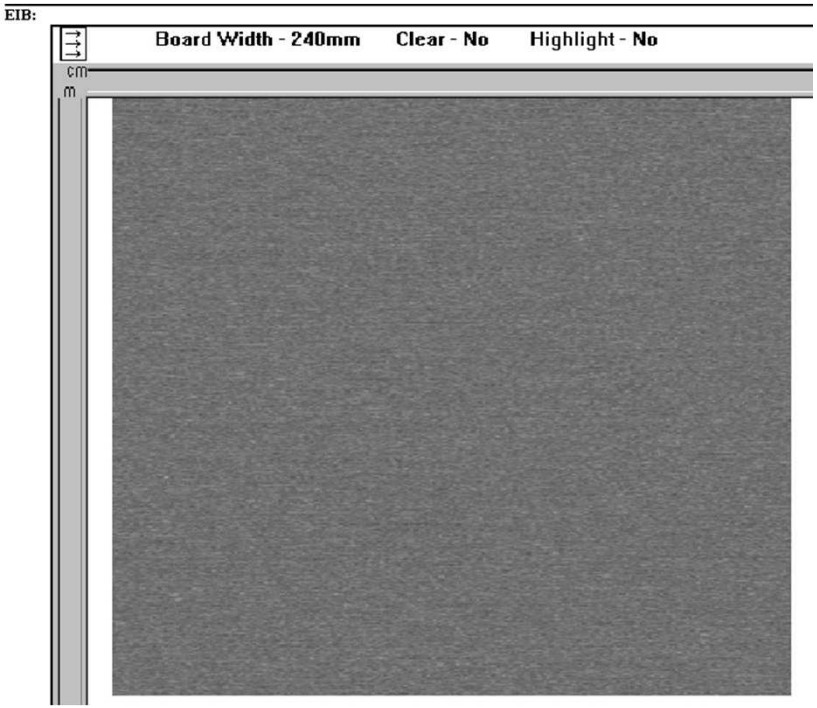
YAS TESTS for AIR TEXTURED YARNS



REFERENCE YARN with
no THIN PLACE DEFECTS

TEST YARN with THIN
PLACE DEFECTS

YAS PROFILES for SLUB YARNS

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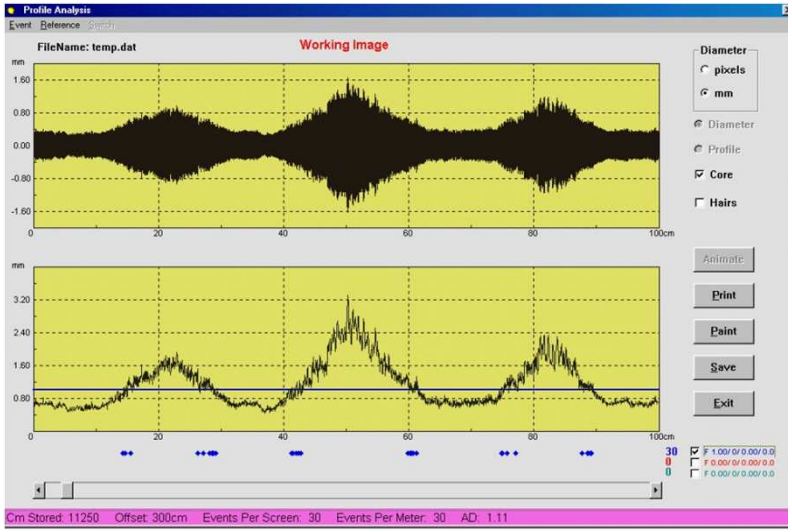
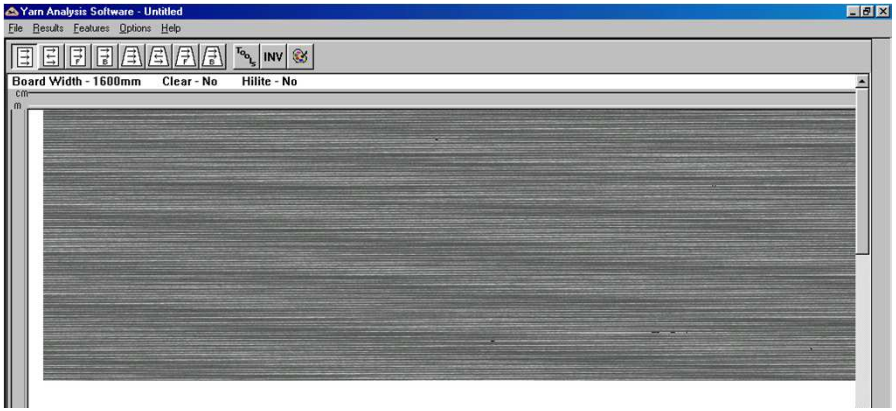
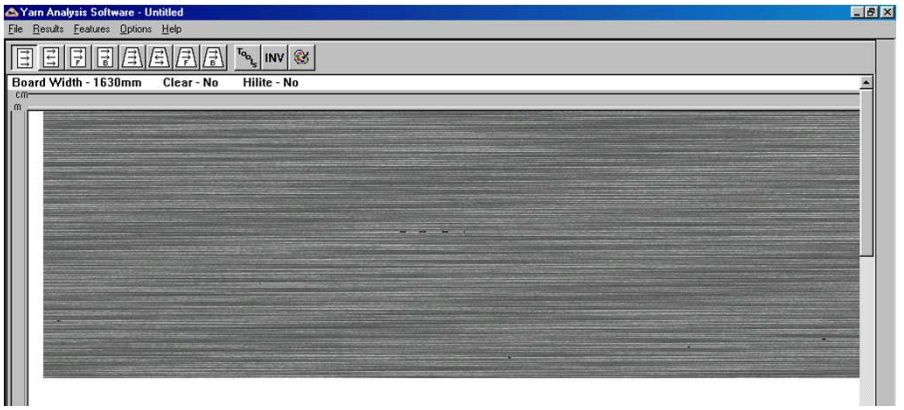
Slub Yarn Profile and Appearance on Different Loom Sizes



160cm LOOM



163cm LOOM



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EFFECT YARN APPLICATIONS

Effect yarns are specialty yarns that have certain “defects”. These defects are specifically introduced to the yarn to create designer look.

Slubs in the yarns for denim fabrics or linen effect yarns typical examples.